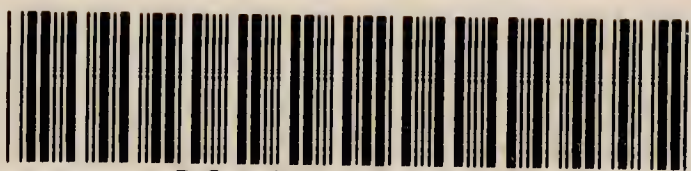


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Lawrence Lawrence

Sept 1879.

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Report of the Anthropometric Committee, consisting of Dr. FARR, Dr. BEDDOE, Mr. BRABROOK (*Sec.*), Sir GEORGE CAMPBELL, Mr. F. P. FELLOWS, Major-Gen. LANE FOX, Mr. FRANCIS GALTON, Mr. PARK HARRISON, Mr. JAMES HEYWOOD, Mr. P. HALLETT, Professor LEONE LEVI, Sir RAWSON RAWSON, Professor ROLLESTON, and Mr. CHARLES ROBERTS.

[PLATES IX.—XII.]

THE Committee was appointed for the purpose of continuing the collection of observations on the systematic examination of heights, weights, &c., of human beings in the British Empire, and the publication of photographs of the typical races of the Empire. That any conclusions drawn from statistics thus collected may be trustworthy, it is obviously essential that as large an average of facts as possible should be obtained, and that the services of a large number of independent investigators should be enlisted. Having, in previous years, laid down the lines upon which observers should proceed, and prepared a circular of instructions, the attention of the Committee has been directed this year not so much towards any attempt to draw conclusions from the facts before them, as towards completing the collection of data, and obtaining the services of fresh observers in various quarters. They have endeavoured, wherever practicable, to induce persons in a position to collect anthropometric statistics, particularly those tending to establish a law of growth and development, to establish a system of periodical record, which from year to year will increase in value and interest. By this means, many difficult problems in relation to race, occupation, climate, culture, &c., may in due course be solved.

Considerable progress has been made by the Committee during the year in the collection of observations and in reducing the results to a tabular shape. No alteration has been made in the forms and instruments used, except that the capacity of the spirometer-bag has been increased, it being found that many persons in selected occupations exceeded the maximum capable of registry by the original instrument. The types for colour of hair have been seriously reconsidered, and the 'stenochromic' process approved—but as the process turned out not to be commercially available, no alteration in the existing book of types has been adopted.

Returns have been received from the following sources, containing the particulars undermentioned in respect of the number of individuals stated in each case:—

Sources	Birth-place, Origin, and Sex	Age, Height, and Weight	Colour of Hair and Eyes	Girth of Chest	Strength of Arm	Eye-sight
1. Cadets Royal Military College, Sandhurst . . . }	300	300	300	† 300	300	300
2. Boys at Westminster School . . .	200	200	200	—	200	—
3. Students at Aberystwith . . .	40	40	40	40	40	40
4. Boys at Christ's Hospital . . .	—	1936	—	846	—	—
5. Medical Students . . .	46	46	46	† 46	46	41
6. Felstead Grammar School . . .	62	62	62	† 62	62	—
7. Men in Mr. Whiteley's employ . . . }	*242	242	—	—	242	—
8. Letter Sorters . . .	—	1980	—	1180	—	—
9. Metropolitan Police . . .	205	205	205	† 205	205	205
10. City Police (first instalment) . . .	60	60	60	† 60	60	60
11. Metropolitan Fire Brigade . . .	80	80	80	† 80	80	80
12. Jews . . .	*140	140	140	140	—	—
13. „ (another source) . . .	20	20	20	20	—	—
14. Industrial Classes . . .	82	82	42	42	—	6
15. Workmen of Messrs. Howard . . .	67	67	66	† 65	62	19
16. Workmen (Dr. Bain) . . .	28	28	28	28	28	—
17. Scotland, various occupations . . .	20	20	20	20	—	—
18. Weavers . . .	*120	120	—	† 120	120	—
<i>Rifle Volunteers.</i>						
19. Northumberland . . .	200	200	200	200	—	—
20. Cumberland . . .	40	40	40	40	—	—
21. Cornwall . . .	110	110	110	110	—	—
22. Somerset . . .	155	155	155	155	—	—
23. Essex . . .	89	89	89	89	13	14
24. Suffolk . . .	135	135	135	135	—	—
25. Kent . . .	* 90	90	—	†	90	—
26. Royal Surrey Militia . . .	459	459	459	† 459	459	459
27. Volunteers and Militia, } Surrey	124	124	124	† 124	124	124
28. Recruits . . .	*100	100	100	100	—	—
29. „ . . .	32	32	—	32	—	—
30. „ . . .	* 79	79	62	79	—	—
31. „ . . .	*190	190	—	190	—	—
32. „ . . .	*100	100	—	100	—	—
33. „ . . .	*218	218	88	218	—	—
34. „ . . .	128	128	108	128	—	20
35. „ . . .	*260	356	—	96	—	—
36. „ . . .	200	200	200	200	—	—
37. „ . . .	199	199	199	199	—	—
38. Soldiers . . .	20	20	20	20	—	—
39. H.M.S. <i>Fisguard</i> . . .	* 59	59	59	59	—	—
<i>Industrial Schools.</i>						
40. Newcastle . . .	*150	150	150	150	—	—
41. Birmingham . . .	84	84	84	84	—	—
42. Greenock . . .	*100	100	100	100	—	—
43. Park Row (Bristol) . . .	* 70	70	70	—	—	—
44. St. James (Bristol) . . .	70	70	70	—	—	—
45. Sale, near Manchester, } Girls' . . .	* 80	80	80	—	—	—
46. Criminals . . .	—	2480	—	—	—	—
	5254	11745	4011	6321	2131	1368

To which are to be added the very extensive observations collected by Mr. Roberts, which will be referred to at length in a subsequent part of this Report. In those marked * particulars of race and origin have not been in all cases given; on the other hand, in those marked † the important particular of breathing capacity has also been observed.

The Committee are thus already in possession of nearly 12,000 original observations on the main question of weight and height in relation to age, in addition to the 50,000 collected by Mr. Roberts, and they have information of returns being in preparation from many other sources.

The following tables exhibit the general result of the returns of height and weight, and the relations between them:—

AVERAGE HEIGHT.

Age	Militia		Recruits		Metropolitan Police		Metropolitan Fire Brigade		Mr. Whiteley's Shopmen		Letter Sorters, &c., General Post Office		Messrs. Howard's Workmen	
	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches
12-	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13-	—	—	2	54·0	—	—	—	—	—	—	36	55·9	—	—
14-	1	55·0	6	55·7	—	—	—	—	—	—	503	60·3	—	—
15-	—	—	—	—	—	—	—	—	2	65·5	670	61·7	—	—
16-	4	64·5	1	60·5	—	—	—	—	8	65·1	275	63·9	1	64·5
17-	13	64·0	3	65·2	—	—	—	—	8	63·5	124	65·4	2	61·5
18-	35	64·7	37	65·8	—	—	—	—	8	66·8	98	65·4	3	69·2
19-	35	65·4	44	66·3	—	—	2	69·5	10	66·1	86	66·4	3	67·2
20-	34	65·3	29	66·5	1	71·5	1	69·5	21	67·3	30	66·4	4	66·3
21-	43	66·5	19	66·8	5	69·5	4	68·3	23	65·9	43	65·8	6	67·7
22-	38	65·5	15	67·4	7	69·2	4	67·8	21	67·3	19	67·1	6	68·2
23-	31	65·6	13	66·8	15	70·4	4	68·0	22	66·6	15	66·8	1	70·5
24-	22	66·3	21	67·7	18	69·8	3	66·5	21	66·6	17	66·6	1	64·5
25-	93	65·8	8	67·9	75	70·2	25	67·5	54	66·0	61	66·2	12	66·7
30-	48	66·1	2	69·5	41	71·0	16	68·2	22	67·0	2	65·0	12	66·1
35-	30	65·9	—	—	33	69·6	10	68·4	18	66·4	1	64·0	9	66·8
40-	15	66·9	—	—	7	69·6	9	67·3	1	66·5	—	—	3	65·2
45-	12	67·1	—	—	3	69·8	2	66·0	1	64·5	—	—	3	66·2
50-	3	69·0	—	—	—	—	—	—	1	70·5	—	—	1	68·5
55-60	2	69·5	—	—	—	—	—	—	1	72·5	—	—	—	—
All ages	459	65·8	200	66·1	205	70·2	80	67·9	242	66·4	1980	62·6	67	66·7
Average age	} 25·9		20·9		30·0		30·8		25·4		16·6		28·9	

NOTE.—If the comparison is limited to the ages between 20 and 35, the averages range as follows:—

Letter Sorters	64	to	67·1
Militia	65·3	„	66·5
Mr. Whiteley's Men	65·9	„	67·3
Messrs. Howard's Men	66·1	„	70·5 (one case only)
Recruits	66·5	„	69·5
Fire Brigade	66·5	„	69·5 (one case only)
Police	69·2	„	71·5 (one case only)

AVERAGE WEIGHT.

Age	Militia		Recruits		Metropoli- tan Police		Metropoli- tan Fire Brigade		Mr. Whiteley's Shopmen		Letter Sorters, &c., General Post Office		Messrs. Howard's Workmen	
	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds
12-	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13-	—	—	2	77·5	—	—	—	—	—	—	36	74·7	—	—
14-	1	72·0	6	85·0	—	—	—	—	—	—	503	93·3	—	—
15-	—	—	—	—	—	—	—	—	2	127·5	670	100·5	—	—
16-	4	122·5	1	107·5	—	—	—	—	8	126·3	275	111·5	1	132·5
17-	13	119·4	3	110·8	—	—	—	—	8	113·1	124	120·5	2	122·7
18-	35	126·2	37	129·0	—	—	—	—	8	135·0	98	123·3	3	144·2
19-	35	136·3	44	135·8	—	—	2	155·0	10	137·5	86	128·7	3	129·2
20-	34	134·1	29	137·3	1	162·5	1	162·5	21	146·3	30	130·0	4	138·8
21-	43	137·6	19	141·4	5	163·5	4	155·0	23	139·5	43	127·6	6	141·7
22-	38	138·0	15	148·8	7	161·6	4	148·8	21	145·8	19	132·0	6	147·5
23-	31	133·8	13	142·5	15	172·2	4	156·3	22	146·4	15	136·5	1	157·5
24-	22	128·4	21	146·5	18	169·7	3	140·8	21	144·9	17	139·9	1	132·5
25-	93	140·5	8	145·0	75	173·6	25	155·1	54	146·0	61	137·7	12	147·5
30-	48	144·6	2	132·5	41	182·7	16	166·3	22	163·2	2	122·5	12	155·0
35-	30	138·2	—	—	33	183·6	10	169·0	18	158·3	1	117·0	9	161·4
40-	15	152·2	—	—	7	208·9	9	170·3	1	172·5	—	—	3	147·5
45-	12	145·0	—	—	3	209·2	2	167·5	1	157·5	—	—	3	140·8
50-	3	154·0	—	—	—	—	—	—	1	217·5	—	—	1	162·5
55-60	2	142·5	—	—	—	—	—	—	1	207·5	—	—	—	—
All ages	459	137·6	200	135·6	205	177·6	80	160·4	242	145·9	1980	106·4	67	147·6
Average age	} 25·9		20·9		30·0		30·8		25·4		16·6		28·9	

NOTE.—Taking, as before, the ages between 20 and 35, which affords means of comparison between all the columns, the diversity of weights in the various classes appears to be much greater than that of height, as follows:—

Letter Sorters	.	.	.	.	.	.	122·5 to 139·9
Militia	.	.	.	.	.	.	128·4 „ 144·6
Recruits	.	.	.	.	.	.	132·5 „ 148·8
Messrs. Howard's Men	.	.	.	.	.	.	132·5 „ 157·5
Mr. Whiteley's Men	.	.	.	.	.	.	139·5 „ 163·2
Fire Brigade	.	.	.	.	.	.	140·8 „ 166·3
Police	.	.	.	.	.	.	162·5 „ 182·7

RATIO OF WEIGHT TO HEIGHT.

Age	Militia		Recruits		Metropoli- tan Police		Metropoli- tan Fire Brigade		Mr. Whiteley's Shopmen		Letter Sorters, &c., General Post Office		Messrs. Howard's Workmen	
	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*	Number of Observations	Ratio between Height and Weight*
12-	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13-	—	—	2	1.4	—	—	—	—	—	—	36	1.3	—	—
14-	1	1.3	6	1.5	—	—	—	—	—	—	503	1.5	—	—
15-	—	—	—	—	—	—	—	—	2	1.9	670	1.6	—	—
16-	4	1.9	1	1.8	—	—	—	—	8	1.9	275	1.7	1	2.1
17-	13	1.9	3	1.7	—	—	—	—	8	1.8	124	2.0	2	2.0
18-	35	2.0	37	2.0	—	—	—	—	8	2.0	98	1.9	3	2.1
19-	35	2.1	44	2.0	—	—	2	2.2	10	2.1	86	1.9	3	1.9
20-	34	2.1	29	2.1	1	2.3	1	2.3	21	2.2	30	2.0	4	2.1
21-	43	2.1	19	2.1	5	2.4	4	2.3	23	2.1	43	1.9	6	2.1
22-	38	2.1	15	2.2	7	2.3	4	2.2	21	2.2	19	2.0	6	2.2
23-	31	2.0	13	2.1	15	2.4	4	2.3	22	2.2	15	2.0	1	2.2
24-	22	1.9	21	2.2	18	2.3	3	2.1	21	2.2	17	2.1	1	2.1
25-	93	2.1	8	2.1	75	2.5	25	2.3	54	2.2	61	2.1	12	2.2
30-	48	2.2	2	1.9	41	2.6	16	2.4	22	2.4	2	1.9	12	2.3
35-	30	2.1	—	—	33	2.6	10	2.5	18	2.4	1	1.8	9	2.4
40-	15	2.3	—	—	7	3.0	9	2.5	1	2.6	—	—	3	2.3
45-	12	2.2	—	—	3	3.0	2	2.5	1	2.4	—	—	3	2.1
50-	3	2.2	—	—	—	—	—	—	1	3.1	—	—	1	2.4
55-60	2	2.1	—	—	—	—	—	—	1	2.7	—	—	—	—
All ages	459	2.1	200	2.1	205	2.5	80	2.4	242	2.2	1980	1.7	67	2.2
Average } age }	25.9		20.9		30.0		30.8		25.4		16.6		28.9	

* Viz., number of pounds in weight to an inch in height.

NOTE.—Taking, as before, the ages between 20 and 35, the average ratios are as follows:—

Letter Sorters	. . . . .	1.9 to 2.1
Recruits and Militia	. . . . .	1.9 „ 2.2
Messrs. Howard's Men	. . . . .	2.1 „ 2.3
Mr. Whiteley's Men and the Fire Brigade	. . . . .	2.1 „ 2.4
Police	. . . . .	2.3 „ 2.6

HEIGHT.

Age last Birthday	Westminster School, Dean's Yard		Industrial Schools							
			Newcastle		Shustoke, Birmingham		Greenock		Sale (Females)	
	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches	Number of Observations	Average Height in Inches
5	—	—	1	41·5	—	—	—	—	—	—
6	—	—	2	43·5	—	—	—	—	—	—
7	—	—	3	43·8	—	—	2	43·5	1	44·5
8	—	—	10	45·7	3	45·5	2	46·0	—	—
9	—	—	11	47·5	5	49·1	6	48·5	5	47·7
10	2	53·0	27	47·8	18	49·0	7	49·2	6	49·7
11	7	55·4	22	49·7	13	49·0	11	51·5	17	50·9
12	15	57·8	26	51·4	15	51·6	24	52·1	10	52·7
13	20	59·7	17	51·8	11	52·6	29	53·5	17	54·7
14	48	61·3	18	53·9	5	54·5	16	55·7	14	57·4
15	39	64·8	12	57·8	11	55·0	2	56·5	9	58·5
16	43	66·5	1	56·5	3	55·5	1	59·5	1	59·5
17	18	67·8	—	—	—	—	—	—	—	—
18	8	67·5	—	—	—	—	—	—	—	—
All ages	200	63	150	50·4	84	51·2	100	52·5	80	53·7
Average age	15·2		11·9		12·4		12·6		12·8	

NOTE.—It will be observed, upon comparison of the columns relating to Industrial Schools, that the Sale school, which consists of girls, has the advantage in height, nearly throughout, over the three schools which consist of boys.

WEIGHT.

Age last Birthday	Westminster School, Dean's Yard		Industrial Schools							
			Newcastle		Shustoke, Birmingham		Greenock		Sale (Females)	
	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds	Number of Observations	Average Weight in Pounds
5	—	—	1	42·5	—	—	—	—	—	—
6	—	—	2	42·5	—	—	—	—	—	—
7	—	—	3	47·5	—	—	2	50·0	1	37·5
8	—	—	10	51·5	3	54·2	2	57·5	—	—
9	—	—	11	53·4	5	61·5	6	64·2	5	50·5
10	2	69·0	25	55·3	18	60·0	7	66·8	6	56·7
11	7	68·4	22	62·0	13	64·8	11	71·6	17	59·6
12	15	78·1	26	64·8	15	69·8	24	77·5	10	66·0
13	20	86·2	17	69·6	11	67·8	29	80·3	17	76·6
14	48	95·3	18	74·2	5	79·5	16	90·0	14	88·6
15	39	111·5	12	92·5	11	95·7	2	90·0	9	95·8
16	43	124·2	1	82·5	3	97·5	1	112·5	1	87·5
17	18	129·6	—	—	—	—	—	—	—	—
18	8	138·1	—	—	—	—	—	—	—	—
All ages	200	106	148	64·3	84	70·6	100	77·8	80	72·4
Average age	15·2		11·9		12·4		12·6		12·8	

NOTE.—The Girls' Industrial School seems to have an advantage in weight over the Boys' Schools (Greenock excepted), but not equal to the advantage in height.

RATIO OF WEIGHT TO HEIGHT.

Age	Westminster School, Dean's Yard		Industrial Schools.							
	Number of observations	Ratio between height and weight*	Newcastle		Shustoke, Birmingham		Greenock		Sale (Females)	
			Number of observations	Ratio between height and weight*	Number of observations	Ratio between height and weight*	Number of observations	Ratio between height and weight*	Number of observations	Ratio between height and weight*
5	—	—	1	1.0	—	—	—	—	—	—
6	—	—	2	1.0	—	—	—	—	—	—
7	—	—	3	1.1	—	—	2	1.1	4	0.8
8	—	—	10	1.1	3	1.2	2	1.3	—	—
9	—	—	11	1.1	5	1.3	6	1.3	5	1.1
10	2	1.3	27	1.2	18	1.2	7	1.4	6	1.1
11	7	1.2	22	1.2	13	1.3	11	1.4	17	1.2
12	15	1.4	26	1.3	15	1.4	24	1.5	10	1.3
13	20	1.4	17	1.3	11	1.3	29	1.5	17	1.4
14	48	1.6	18	1.4	5	1.5	16	1.6	14	1.5
15	39	1.7	12	1.6	11	1.7	2	1.6	9	1.6
16	43	1.9	1	1.5	3	1.8	1	1.9	1	1.5
17	18	1.9	—	—	—	—	—	—	—	—
18	8	2.0	—	—	—	—	—	—	—	—
All ages .	200	1.7	150	1.3	84	1.4	100	1.5	80	1.3
Average age	15.2 years		11.9 years		12.4 years		12.6 years		12.8 years	

* Number of pounds in weight to an inch in height.

NOTE.—Taking the ages 12 and 13 as those which afford the largest number for comparison, it would seem that the ratio between height and weight does not differ largely among these very diverse classes.

The returns relating to Christ's Hospital have been abstracted for the Committee by Sir Rawson W. Rawson, for each month of age as shown by the subjoined tables :—

TABLE I.—Statement of the *Height*, without shoes, of boys in the School of Christ's Hospital, showing the average, maximum, and minimum at each month, quarter, and year of age, between 9 and 16.

Age in Years and Months	No. of Observations	Height in Inches and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
9 0	1	47.4	—	—	—	—	—	—
1 1	—	—	—	—	—	—	—	—
2 2	—	—	—	—	—	—	—	—
3 3	—	—	—	—	—	—	—	—
4 4	1	49.1	—	—	—	—	—	—
5 5	—	—	—	—	—	—	—	—
6 6	3	50.1	52.4	48.4	9	51.2	22	50.8
7 7	3	51.2	52.5	50				
8 8	3	52.3	57	49				
9 9	2	50.7	51	50.4	13	50.6		
10 10	1	51.2	—	—				
11 11	10	50.5	52.3	49.2				
Average of Monthly Averages		} 53						
10 0	10	51.9	54.5	48.4	27	51.7	210	52.2
1 1	8	51.6	54.5	49.6				
2 2	9	51.4	55.2	49				
3 3	17	51.3	54.6	47.6	44	51.5		
4 4	14	51.3	56	48.4				
5 5	13	52.2	54.1	49				
6 6	21	52.2	54.4	49.4	64	52.5		
7 7	13	52.4	55.2	47.6				
8 8	30	52.9	56.6	49.4				
9 9	24	52.3	57	48.5	75	52.5		
10 10	27	52.8	56.2	47.4				
11 11	24	52.3	55.7	49.4				
Average of Monthly Averages		} 55.3						
11 0	24	52.6	57	49	83	52.6	392	53.7
1 1	24	52.9	56	50.3				
2 2	35	52.5	56	49.1				
3 3	36	52.9	60.4	47.6	102	53.2		
4 4	29	54	59.4	49.1				
5 5	37	53.1	60.2	49				
6 6	33	53.1	57	50.3	102	53.6		
7 7	38	53.4	58.7	47.6				
8 8	31	54.3	59	48.2				
9 9	24	54.2	59.4	50.3	105	54.2		
10 10	37	54.4	60.2	47.4				
11 11	44	54.2	59	50.6				
Average of Monthly Averages		} 58.4						

TABLE I.—STATEMENT OF THE HEIGHT, &C.—*continued*.

Age in Years and Months	No. of Observations	Height in Inches and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
12 0	33	54.2	58.5	48.4	105	54.2	410	54.7
1	37	54	60.1	51.4				
2	35	54.5	58	51				
3	31	54.6	58.6	51	115	54.6		
4	51	54.6	59.4	49				
5	33	54.9	59	50				
6	47	54.9	58.5	51.5	118	54.6		
7	38	54.7	58.4	49.2				
8	33	54.2	59.4	50.3				
9	22	55.1	57.5	52	72	55.6		
10	19	54.9	59.7	49.4				
11	31	55.9	61	50.6				
Average of Monthly Averages		59.1		50.3				
13 0	21	57	62	51.7	91	56.2	353	56.7
1	39	56.2	61.5	49				
2	31	55.9	62.4	51.4				
3	29	56.9	61	51.4	98	56.4		
4	34	56.5	65.7	52				
5	35	56	61.5	51				
6	34	56.6	61.4	50.1	95	56.9		
7	35	56.7	62.2	51.4				
8	26	57.8	63	54.2				
9	20	56.5	59.4	52.3	69	57.3		
10	17	57.5	60.4	53.4				
11	32	57.7	64.4	48				
Average of Monthly Averages		62.1		51.3				
14 0	26	57.8	62.4	53	83	58.2	291	58.6
1	28	58.3	64.4	50.1				
2	29	58.6	65.5	53.1				
3	22	59.2	64.2	53.7	80	58.4		
4	27	57.2	63	53.2				
5	31	58.9	63.4	52.6				
6	22	58.5	65.3	52	68	59.2		
7	25	58.6	62.4	53.2				
8	21	60.4	65.7	55				
9	18	58.7	63.4	53	60	58.6		
10	13	59.3	64	56				
11	29	58.3	66.4	54				
Average of Monthly Averages		64.2		53.2				

TABLE I.—STATEMENT OF THE HEIGHT, &C.—*continued*.

Age in Years and Months	No. of Observations	Height in Inches and Decimals								
		Monthly			Quarterly		Yearly			
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average		
15 0	29	60.1	66	51.2	}	91	60.4	}	236	61.3
1	33	60.4	65.2	53.4						
2	29	60.6	67.4	54.1						
3	17	61.4	66.3	54.6	}	54	61.6			
4	25	61.8	66.2	57.2						
5	12	61.3	66.4	57.4						
6	14	61.9	66	55	}	42	61.3			
7	13	60.2	65	57.1						
8	15	61.6	67	57						
9	22	62.6	67.4	55.7	}	49	62.8			
10	16	62.8	68.2	56.4						
11	11	63.4	69.4	57.4						
		Average of Monthly Averages		}	66.7	55.6				
16 0	8	63.4	67.4				56.6	}	17	63.4
1	4	62.9	68.2				60			
2	—	—	—	—						
3	2	64.2	66.2	62.2						
4	1	63.6	—	—						
5	2	63.7	67.1	63.4	}	5	61.3			
6	—	—	—	—						
7	—	—	—	—						
8	2	59	59.5	56.8						
9	1	61.2	—	—						
10	1	62.4	—	—	}	65.7	60.1			
11	1	65	—	—						
		Average of Monthly Averages		}	65.7	60.1				

TABLE II.—Statement of the *Weight* of boys in the School of Christ's Hospital, showing the average, maximum, and minimum at each month, quarter, and year of age, between 9 and 16 :—

Age in Years and Months	No. of Observations	Weight in lbs. and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
9 0	1	48	—	—	—	—	—	—
1	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—	—
3	—	—	—	—	—	—	—	—
4	1	59	—	—	—	—	—	—
5	—	—	—	—	—	—	—	—
6	3	58	64	52	9	60·7	22	58·7
7	3	63	65	61				
8	3	61	62	59				
9	2	57·5	58	57	13	58·7		
10	1	61	—	—				
11	10	58·7	67	56				
Average of Monthly Averages		} 63·2		57				
10 0	10	63	75	52	27	61	210	64·1
1	8	60	66	52				
2	9	60	70	54				
3	17	62·9	73	56	44	63·4		
4	14	64	81	50				
5	13	64·8	76	57				
6	21	62·8	72	54	64	64·2		
7	13	64	75	52				
8	30	65·3	78	54				
9	24	64·5	80	53	75	65·6		
10	27	66·3	79	56				
11	24	63·9	77	53				
Average of Monthly Averages		} 75·1		53·6				
11 0	24	64·4	77	56	83	64·8	392	67·4
1	24	65·8	77	55				
2	35	64·9	76	51				
3	36	65·8	98	51	102	66·9		
4	29	68·5	93	56				
5	37	66·6	83	52				
6	33	66·1	79	52	102	67·7		
7	38	67·5	81	57				
8	31	69·7	88	54				
9	24	67·8	81	58	105	69·7		
10	37	70·6	84	54				
11	44	70	90	46				
Average of Monthly Averages		} 83·9		53·5				

NOTE.—Weight is taken without coats, waistcoats, and shoes. The average weight of clothes worn when weighed is ascertained to be $2\frac{1}{2}$ lbs.

TABLE II.—STATEMENT OF THE WEIGHT, &c.—*continued*.

Age in Years and Months	No. of Observations	Weight in lbs. and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
12 0	33	68.4	83	56	105	69.5	410	71.3
1	37	69.7	81	58				
2	35	70.2	86	58				
3	31	70.1	92	58	115	70.8		
4	51	70	114	51				
5	33	70.2	90	48				
6	47	70	86	61	118	71.5		
7	38	71.3	91	48				
8	33	73	93	61				
9	22	74	84	64	72	74.7		
10	19	73.5	90	56				
11	31	75.9	92	62				
Average of Monthly Averages		90.1		56.7				
13 0	21	75.5	90	60	91	76.2	353	78.3
1	39	77.1	100	57				
2	31	75.7	113	55				
3	29	78.3	102	58	98	77.3		
4	34	77.6	131	57				
5	35	76.2	106	56				
6	34	76.8	93	62	95	79.3		
7	35	79.5	100	56				
8	26	82	114	65				
9	20	78.6	91	62	69	81.2		
10	17	82.5	100	66				
11	32	82	120	66				
Average of Monthly Averages		105		60				
14 0	26	80	104	61	83	84.9	291	86.7
1	28	86.6	108	62				
2	29	87.4	133	60				
3	22	88.1	117	64	80	86.7		
4	27	83.2	110	64				
5	31	86.8	125	66				
6	22	85.2	112	69	68	88.3		
7	25	86	105	57				
8	21	94.1	131	70				
9	18	89	112	67	60	88.7		
10	13	90.3	112	70				
11	29	87.7	129	69				
Average of Monthly Averages		116.5		64.9				

NOTE.—Weight is taken without coats, waistcoats, and shoes. The average weight of clothes worn when weighed is ascertained to be $2\frac{1}{2}$ lbs.

TABLE II.—STATEMENT OF THE WEIGHT, &C.—*continued*.

Age in Years and Months	No. of Obser- vations	Weight in lbs. and Decimals								
		Monthly			Quarterly		Yearly			
		Average	Maximum	Minimum	No. of Obser- vations	Average	No. of Obser- vations	Average		
15 0	29	91.9	126	66	}	91	93.9	}	236	98
1	33	93	113	70						
2	29	96.1	145	70						
3	17	100.7	140	71	}	54	98.1			
4	25	96.8	130	71						
5	12	96.9	122	77						
6	14	102.7	122	80	}	42	99			
7	13	95.2	120	70						
8	15	98.6	116	81						
9	22	102.5	124	83	}	49	104.8			
10	16	104.0	129	72						
11	11	110	137	85						
Average of Monthly Averages		} 127			74.6					
16 0	8	101.1	122	71	}	17	103.6	}	22	104
1	4	96.7	116	86						
2	—	—	—	—						
3	2	113	120	106						
4	1	113	—	—						
5	2	113	139	88	}	5	105.2			
6	—	—	—	—						
7	—	—	—	—						
8	2	98	98	98						
9	1	108	—	—						
10	1	107	—	—	}					
11	1	105	—	—						
Average of Monthly Averages		} 119			90					

NOTE.—Weight is taken without coats, waistcoats, and shoes. The average weight of clothes worn when weighed is ascertained to be $2\frac{1}{2}$ lbs.

TABLE III.—Statement of the empty chest-girth of boys in the School of Christ's Hospital, showing the average, maximum, and minimum at each month, quarter, and year of age, between 9 and 16:—

Age in years and months	No. of Observa tions	Chest-girth in Inches and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
9 0	1	25	—	—	—	—	—	—
1 1	—	—	—	—	—	—	—	—
2 2	—	—	—	—	—	—	—	—
3 3	—	—	—	—	—	—	—	—
4 4	1	29·3	—	—	—	—	—	—
5 5	—	—	—	—	—	—	—	—
6 6	3	25·6	26	24·2	10	26	23	25·5
7 7	4	26·5	27·2	25·4				
8 8	3	26	26·6	24·6				
9 9	2	26·2	26·4	26	13	25·3		
10 10	1	24	—	—				
11 11	10	25	27·1	24				
Average of Monthly Averages		} 27		24·9				
10 0	10	25·6	27	23·4	28	25·2	194	25·8
1 1	8	24·9	26·6	24				
2 2	10	25	25·6	24·4				
3 3	15	25·5	28	22·5	39	25		
4 4	13	25·8	28	24				
5 5	11	26·1	28·1	24				
6 6	20	25·5	28·2	22·4	58	25·8		
7 7	11	26·1	28	24				
8 8	27	26	28	23·4				
9 9	23	25·7	28·4	24	69	26·2		
10 10	24	26·5	29·6	25				
11 11	22	26·3	28·6	22				
Average of Monthly Averages		} 27·9		23·6				
11 0	20	25·7	28·2	23·4	68	25·7	279	26
1 1	18	25·7	28	23				
2 2	30	25·7	28	23·4				
3 3	27	26	29·4	23	74	26·3		
4 4	24	26·3	28·2	24				
5 5	23	26·5	28·6	24				
6 6	24	25·9	28·4	23·4	72	26		
7 7	28	26·1	29·2	23·2				
8 8	20	26	28·4	23				
9 9	12	26·4	28·3	24	65	26·3		
10 10	26	26·6	29	23				
11 11	27	25·9	30	22·7				
Average of Monthly Averages		} 28·7		23·4				

NOTE.—The chest is measured over nipple and under bladebones, over the shirt. The allowance for shirt would be one inch.

TABLE III.—STATEMENT OF THE EMPTY CHEST-GIRTH, &C.—*continued*.

Age in years and months	No. of Observa- tions	Chest-girth in Inches and Decimals.											
		Monthly			Quarterly		Yearly						
		Average	Maximum	Minimum	No. of Observa- tions	Average	No. of Observa- tions	Average					
12 0	21	26.6	29	24.4	}	55	26.4	}	159	26.5			
1	19	26.2	28.6	21									
2	15	26.5	30	22.4									
3	15	26.6	29.6	24	}	60	26.5						
4	30	26.1	28.2	22.4									
5	15	27	29.4	25.4									
6	23	26.4	29.4	24	}	42	26.4						
7	11	26.1	29.4	23									
8	8	26.6	27.4	25									
9	1	29	—	—	}	2	27						
10	1	25	—	—									
11	—	—	—	—									
Average of Monthly Averages		}	28.1	23.2									
13 0	1				25.6	—	—	—	—				
1	—				—	—	—	—	—				
2	—	—	—	—	—	—	—						
3	—	—	—	—	—	—	—						
4	—	—	—	—	—	—	—						
5	—	—	—	—	—	—	—						
6	—	—	—	—	—	—	—						
7	—	—	—	—	—	—	—						
8	—	—	—	—	—	—	—						
9	—	—	—	—	—	—	—						
10	—	—	—	—	—	—	—						
11	—	—	—	—	—	—	—						
Average of Monthly Averages		}	—	—									
14 0	—				—	—	—	}	3	31.1	}	20	30
1	1				29.4	—	—						
2	2	32	32	31.9									
3	—	—	—	—	}	1	30.4						
4	—	—	—	—									
5	1	30.4	—	—									
6	—	—	—	—	}	4	28.1						
7	4	28.1	31	26									
8	—	—	—	—									
9	1	35.5	—	—	}	12	30.3						
10	4	31.2	36	27.4									
11	7	29.1	31.1	26.9									
Average of Monthly Averages		}	32.5	28.1									

NOTE.—The chest is measured over nipple and under bladebones, over the shirt. The allowance for shirt would be one inch.

TABLE III.—STATEMENT OF THE EMPTY CHEST-GIRTH, &C.—*continued*.

Age in years and months	No. of Observa- tions	Chest-girth in Inches and Decimals						
		Monthly			Quarterly		Yearly	
		Average	Maximum	Minimum	No. of Observations	Average	No. of Observations	Average
15 0	13	30.1	34.4	26.4	} 55	29.7	} 153	30.3
1	22	29.5	33	25.2				
2	20	29.7	34.4	27				
3	11	30.2	35	26	} 34	30.3		
4	17	30.8	32	26				
5	6	31.3	34	28.4				
6	8	31.4	34	28	} 26	30.3		
7	6	28.9	34	26				
8	12	30.3	33.4	28				
9	14	30.1	34	27.4	} 38	31.1		
10	14	31.0	34.4	28				
11	10	32.2	35	29				
Average of Monthly Averages		} 34		27.1				
16 0	6	31.2	33	28.4	—	—	} 17	30.8
1	5	29.8	31	26.4	—	—		
2	—	—	—	—				
3	1	32.4	—	—				
4	—	—	—	—				
5	1	29	—	—				
6	—	—	—	—				
7	—	—	—	—				
8	2	30.7	32	29.4	—	—		
9	1	31.4	—	—				
10	—	—	—	—				
11	1	33	—	—				
Average of Monthly Averages		} 32		28.1				

NOTE.—The chest is measured over nipple and under bladebones, over the shirt. The allowance for shirt would be one inch.

TABLE IV.—Abstract of the height, weight, and chest-girth of the boys, observed at each year of age, with the actual and proportionate rate of increase:—

Age .	Height in Inches and Decimals							
	Number of Observa- tions	Average	Maxi- mum	Mini- mum	Average of Monthly Maxima	Average of Monthly Minima	Annual Increase	Per- centage Proportion of Increase at each Age
From 9 to 10 .	22	50·8	57	48·4	53	49·4	Inches —	—
„ 10 „ 11 .	210	52·2	57	47·4	55·3	49·1	1·4	2·75
„ 11 „ 12 .	392	53·7	60·4	47·4	58·4	49·1	1·5	2·87
„ 12 „ 13 .	410	54·7	61	48·4	59·1	50·3	1	1·86
„ 13 „ 14 .	353	56·7	65·7	48	62·1	51·3	2	3·65
„ 14 „ 15 .	291	58·6	66·4	50·1	64·2	53·2	1·9	3·35
„ 15 „ 16 .	236	61·3	69·4	55·6	66·7	55·6	2·7	4·60
„ 16 „ 17 .	22	62·8	68·2	56·6	65·7	60·1	1·5	2·44
Total . . .	1936							
Weight in lbs. and Decimals								
From 9 to 10 .	22	58·7	67	52	63·2	57	lbs. —	—
„ 10 „ 11 .	210	64·1	81	50	75·1	53·6	5·4	9·20
„ 11 „ 12 .	392	67·4	98	46	83·9	53·5	3·3	5·14
„ 12 „ 13 .	410	71·3	114	48	90·1	56·7	3·9	5·78
„ 13 „ 14 .	353	78·3	131	55	105	60	7	9·95
„ 14 „ 15 .	291	86·7	133	57	116·5	64·9	8·4	10·72
„ 15 „ 16 .	236	98	145	66	127	74·6	11·3	13·03
„ 16 „ 17 .	22	104	139	71	119	90	6	6·12
Total . . .	1936							
Chest-girth in Inches and Decimals								
From 9 to 10 .	23	25·5	27·2	24	27	24·9	Inches —	—
„ 10 „ 11 .	194	25·8	29·6	22	27·9	23·6	0·3	1·17
„ 11 „ 12 .	279	26	30	22·7	28·7	23·4	0·2	0·79
„ 12 „ 13 .	159	26·5	30	21	28·1	23·2	0·5	1·92
„ 13 „ 14 .	1	25·6	—	—	—	—	—	—
„ 14 „ 15 .	20	30	36	26	32·5	28·1	3·5	13·20
„ 15 „ 16 .	153	30·3	35	25·2	34	27·1	0·3	1·00
„ 16 „ 17 .	17	30·8	33	26·4	32	28·1	0·5	1·62
Total . . .	846							

TABLE V.—Abstract of the average height, weight, and chest-girth of boys in the School of Christ's Hospital, at each year of age, and the increase and percentage proportion of increase at each age :—

Age	Number of Observations		Average at each Age			Increase at each Age			Percentage Proportion of Increase at each Age		
	Height and Weight	Chest-girth	Height	Weight	Chest-girth	Height	Weight	Chest-girth	Height	Weight	Chest-girth
From 9 to 10	22	23	In. 50·8	lbs. 58·7	In. 25·5	—	—	—	—	—	—
„ 10 „ 11	210	194	52·2	64·1	25·8	1·4	5·4	0·3	2·75	9·20	1·17
„ 11 „ 12	392	279	53·7	67·4	26	1·5	3·3	0·2	2·87	5·14	0·79
„ 12 „ 13	410	159	54·7	71·3	26·5	1	3·9	0·5	1·86	5·78	1·92
„ 13 „ 14	353	1	56·7	78·3	25·6	2	7	—	2·65	9·95	—
„ 14 „ 15	291	20	58·6	86·7	30	1·9	8·4	3·5	3·35	10·72	13·20
„ 15 „ 16	236	153	61·3	98	30·3	2·7	11·3	0·3	4·60	13·03	1·00
„ 16 „ 17	22	17	62·8	104	30·8	1·5	6	0·5	2·44	6·12	1·62
Total . . .	1936	846									

TABLE VI.—Statement of the weight and chest-girth in relation to height of boys in the School of Christ's Hospital, between the ages of 9 and 16 :—

Height	Weight		Chest-girth	
	Number of Observations	Average in lbs.	Number of Observations	Average in inches
ft. in.				
5 9	1	135	1	33·4
5 8	2	116	1	31
5 7	8	124	5	33
5 6	15	122	10	32·6
5 5	22	118	10	32·1
5 4	34	108	14	31·8
5 3	46	103	20	30·3
5 2	53	100	23	31·2
5 1	73	96	26	30·5
5 0	100	91	27	29·7
4 11	109	86	17	28·7
4 10	135	84	29	28·7
4 9	148	79	28	27·8
4 8	189	75	56	27
4 7	201	73	73	26·9
4 6	211	70	96	26·3
4 5	181	67	105	26
4 4	166	64	94	26
4 3	106	61	66	25·5
4 2	87	59	75	25·5
4 1	50	58	40	25·5
4 0	12	54	11	24·6
3 11	5	52	5	24·8

TABLE VII.—Statement of the percentage proportion which the averages of maxima and minima bear to the general averages of height, weight, and chest-girth among boys in the School of Christ's Hospital, between the ages of 9 and 16:—

Years of Age	Height		Weight		Chest-girth	
	Maxima	Minima	Maxima	Minima	Maxima	Minima
	+	—	+	—	+	—
9	3.9	2.7	7.6	2.9	6	2.3
10	5.9	5.9	17.1	16.3	8.1	8.1
11	8.7	8.5	24.4	20.6	10.4	10
12	8	8	26.3	20.4	6	12.4
13	9.5	9.5	34.1	23.3	—	—
14	9.5	9.2	34.3	25.1	8	7
15	8.8	9.3	29.8	23.8	12.2	10.5
16	4.6	4.3	14.4	13.4	3.9	8.8

TABLE VIII.—Abstract of the mean height, weight, and chest girth of boys in the School of Christ's Hospital, between the ages of 9 and 16:—

Age		Quarterly			Yearly		
		Height	Weight	Chest-girth	Height	Weight	Chest-girth
Years	Months	Inches	Lbs.	Inches	Inches	Lbs.	Inches
16	0	—	—	—	62.1	101	31
15	9	63.1	102.5	31	} 61.7	95.5	30.4
15	6	62.2	98	30.4			
15	3	61	95	30.4			
15	0	60.7	92.5	29.4			
14	9	59.2	86	29.2	} 59.1	85.5	29.4
14	6	59.4	87	—			
14	3	58.5	85.5	—			
14	0	58	83.5	—			
13	9	57.2	80	—	} 56	78	
13	6	56.5	77	—			
13	3	56.2	75.5	—			
13	0	56.2	75	—			
12	9	56.2	74.5	—	} 54.5	70.5	26.4
12	6	54.5	72	26.4			
12	3	54	69.5	26.4			
12	0	53.7	68.5	27			
11	9	—	69	26	} 53.2	65.5	26
11	6	—	66.5	26			
11	3	—	65	26			
11	0	—	63	25.6			
10	9	—	64	26.2	} 51.8	63	26
10	6	—	65	25.6			
10	3	—	62.5	25.6			
10	0	—	59.5	25			
9	0	—	—	—	49.8	58.5	25.4

TABLE IX.—Statement of the mean height of boys in the School of Christ's Hospital, between the ages of 9 and 16 :—

Height in Inches and Half-Inches	Number of Boys at each Age								
	9	10	11	12	13	14	15	16	Total 9 to 16
68	—	—	—	—	—	—	1	1	
67·5	—	—	—	—	—	—	1	—	
67	—	—	—	—	—	—	5	2	
66·5	—	—	—	—	—	—	1	—	
66	—	—	—	—	—	1	13	1	
65·5	—	—	—	—	1	1	6	—	
65	—	—	—	—	—	4	8	— 3 —	
64·5	—	—	—	—	—	—	3	—	
64	—	—	—	—	3	9	16	—	
63·5	—	—	—	—	—	—	4	1	
63	—	—	—	1	2	9	27	2	
62·5	—	—	—	—	—	3	8	—	
62	—	—	—	—	4	13	22	— 3 —	
61·5	—	—	—	—	4	8	— 6 —	1	
61	—	—	—	3	7	22	21	1	
60·5	—	—	—	1	3	10	2	1	
60·0	—	—	3	4	20	28	24	— 3 —	
59·5	—	—	—	1	6	8	3	1	
59	—	—	5	6	27	— 33 —	— 16 —	—	
58·5	—	—	2	5	11	8	3	1	
58	—	—	6	21	29	28	15	—	
57·5	—	—	3	11	9	4	1	—	
57	1	1	10	31	43	20	9	—	
56·5	—	3	3	9	10	8	1	—	
56	—	8	24	— 56 —	35	25	4	—	
55·5	—	3	14	16	12	1	2	—	
55	—	12	— 43 —	41	38	17	5	—	
54·5	—	7	15	12	16	6	1	1	
54	—	18	53	46	24	9	3	—	
53·5	—	6	17	17	4	3	—	—	
53	—	24	41	— 43 —	15	7	4	—	
52·5	1	13	16	19	3	1	—	—	
52	3	— 23 —	45	30	12	1	—	—	
51·5	—	7	12	6	3	1	—	—	
51	— 4 —	22	28	16	6	1	—	—	
50·5	1	8	11	4	1	—	—	—	
50	— 6 —	— 30 —	16	4	1	1	—	—	
49·5	2	6	8	3	—	—	—	—	
49	4	9	12	3	4	1	—	—	
48·5	—	6	—	—	—	—	—	—	
48	1	4	1	1	—	—	—	—	
47·5	—	—	3	—	—	—	—	—	
47	1	—	1	—	—	—	—	—	
Total .	24	210	932	410	353	291	236	22	1938

The middle bar in each column indicates the actual mean: the upper bar the mean of excess, and the lower bar the mean of defect.

TABLE X.—Statement of the mean weight of boys in the School of Christ's Hospital, between the ages of 9 and 16 :—

Weight in lbs.	Number of Boys at each Age							
	9	10	11	12	13	14	15	16
145	—	—	—	—	—	—	1	—
140	—	—	—	—	—	—	1	—
139	—	—	—	—	—	—	—	1
137	—	—	—	—	—	—	1	—
136	—	—	—	—	—	—	1	—
135	—	—	—	—	—	—	1	—
133	—	—	—	—	—	—	—	—
132	—	—	—	—	—	2	1	—
131	—	—	—	—	—	1	3	—
130	—	—	—	—	—	—	1	—
129	—	—	—	—	—	—	1	—
128	—	—	—	—	—	—	—	—
125	—	—	—	—	—	2	1	—
124	—	—	—	—	—	—	—	—
122	—	—	—	—	—	—	5	1
121	—	—	—	—	1	—	3	—
120	—	—	—	—	1	—	4	1
119	—	—	—	—	—	—	2	—
8	—	—	—	—	—	1	5	—
7	—	—	—	—	—	2	4	—
6	—	—	—	—	—	1	4	1
5	—	—	—	—	—	—	4	2
4	—	—	—	—	1	—	3	—
3	—	—	—	—	1	—	3	1
2	—	—	—	—	—	3	7	—
1	—	—	—	—	—	—	3	1
110	—	—	—	—	—	2	—	—
109	—	—	—	—	—	—	2	—
8	—	—	—	—	—	2	4	1
7	—	—	—	—	—	—	3	1
6	—	—	—	—	1	4	3	1
5	—	—	—	—	2	2	9	—
4	—	—	—	—	—	4	5	—
3	—	—	—	—	—	4	2	—
2	—	—	—	—	1	7	4	—
1	—	—	—	—	—	7	3	—
100	—	—	—	—	3	7	4	2
99	—	—	—	—	1	5	2	—
8	—	—	1	—	5	6	11	2
7	—	—	—	—	3	7	3	1
6	—	—	—	—	3	7	8	1
5	—	—	—	—	2	7	7	—
4	—	—	—	—	4	5	10	1
3	—	—	1	1	3	6	5	—
2	—	—	—	4	1	5	5	—
1	—	—	—	1	6	5	7	—
90	—	—	2	3	15	8	10	—
89	—	—	—	2	4	8	4	—
8	—	—	1	5	8	11	8	1

The middle bar in each column indicates the actual mean; the upper bar the mean of excess, and the lower bar the mean of defect.

TABLE X.—STATEMENT OF THE MEAN WEIGHT, &C.—*continued.*

Weight in lbs.	Number of Boys at each Age							
	9	10	11	12	13	14	15	16
7	—	—	—	2	7	7	3	—
6	—	—	1	7	11	— 11—	7	1
5	—	—	—	3	4	5	6	—
4	—	—	6	8	13	10	2	—
3	—	—	2	5	6	5	2	1
2	—	—	3	5	16	9	2	—
1	—	2	7	16	10	11	7	—
80	—	1	8	11	12	13	2	—
79	—	1	5	12	10	5	1	—
8	—	3	4	10	13	8	2	—
7	—	5	10	6	13	— 11—	4	—
6	—	2	11	22	16	12	3	—
5	—	4	8	17	21	8	1	—
4	—	6	20	20	14	5	2	—
3	—	6	10	22	14	14	—	—
2	—	6	19	16	15	7	6	—
1	—	4	10	— 18—	— 11—	2	1	1
70	—	12	19	22	15	10	4	—
69	—	10	12	14	9	5	2	—
8	—	4	18	21	8	1	—	—
7	1	6	12	11	10	1	—	—
6	—	21	— 32—	15	10	3	1	—
5	1	7	17	— 21—	8	—	—	—
4	1	4	16	20	2	2	—	—
3	2	8	25	11	4	1	—	—
2	— 2 —	13	— 19—	17	5	2	—	—
1	3	9	17	18	2	1	—	—
60	—	8	21	9	1	2	—	—
59	— 3 —	13	15	—	1	—	—	—
8	3	— 12—	6	6	1	—	—	—
7	1	7	6	1	2	1	—	—
6	— 5 —	23	14	5	2	—	—	—
5	—	2	1	—	1	—	—	—
4	—	4	2	—	—	—	—	—
3	—	2	—	—	—	—	—	—
2	1	4	4	—	—	—	—	—
1	—	—	4	1	—	—	—	—
50	—	1	1	—	—	—	—	—
49	—	—	—	—	—	—	—	—
8	1	—	—	2	—	—	—	—
7	—	—	—	—	—	—	—	—
6	—	—	2	—	—	—	—	—
Total . . .	24	210	392	410	353	291	236	22

The middle bar in each column indicates the actual mean; the upper bar the mean of excess, and the lower bar the mean of defect.

TABLE XI.—Statement of the mean chest-girth of boys in the School of Christ's Hospital, between the ages of 9 and 16:—

Chest-girth in Inches and Eighths	Number of Boys at each Age							
	9	10	11	12	13	14	15	16
35 4	—	—	—	—	—	1	—	—
35	—	—	—	—	—	—	2	—
34 6	—	—	—	—	—	—	—	—
4	—	—	—	—	—	—	3	—
2	—	—	—	—	—	—	—	—
34	—	—	—	—	—	—	6	—
33 6	—	—	—	—	—	—	—	—
4	—	—	—	—	—	—	4	—
2	—	—	—	—	—	—	—	—
33	—	—	—	—	—	1	8	2
32 6	—	—	—	—	—	—	—	—
4	—	—	—	—	—	—	3	1
2	—	—	—	—	—	—	—	—
32	—	—	—	—	—	2	16	3
31 6	—	—	—	—	—	1	—	—
4	—	—	—	—	—	—	6	1
2	—	—	—	—	—	—	—	—
31	—	—	—	—	—	2	16	3
30 6	—	—	—	—	—	—	—	1
4	—	—	—	—	—	1	13	1
2	—	—	—	—	—	—	1	—
30	—	—	1	1	—	—	19	—
29 6	—	1	—	3	—	—	1	—
4	—	—	2	1	—	3	7	2
2	1	—	3	—	—	1	—	—
29	—	—	1	5	—	—	12	1
28 6	—	2	5	7	—	—	—	—
4	—	2	7	3	—	—	3	1
2	—	2	8	3	—	—	2	—
28	—	11	12	5	—	1	15	—
27 6	—	5	4	3	—	—	—	—
4	—	6	9	11	—	2	3	—
2	2	4	3	10	—	—	2	—
27	1	13	26	18	—	2	3	—
26 6	2	11	10	9	—	1	1	—
4	2	19	18	10	—	—	3	1
2	1	6	15	3	—	—	3	—
26	2	15	30	19	—	2	—	—
25 6	1	13	23	1	1	—	—	—
4	2	11	21	13	—	—	—	—
2	1	4	13	2	—	—	1	—
25	2	24	21	12	—	—	—	—
24 6	1	4	6	3	—	—	—	—
4	2	14	13	7	—	—	—	—
2	1	5	4	1	—	—	—	—
24	4	14	9	5	—	—	—	—
23 6	—	1	1	—	—	—	—	—
4	—	4	3	—	—	—	—	—
2	—	—	1	—	—	—	—	—
23	—	—	6	1	—	—	—	—
22 6	—	1	2	—	—	—	—	—
4	—	1	1	2	—	—	—	—
2	—	—	—	—	—	—	—	—
22	—	1	1	—	—	—	—	—
21	—	—	—	1	—	—	—	—
Total . . .	25	194	279	159	1	20	153	17

The middle bar in each column indicates the actual mean; the upper bar the mean of excess, and the lower bar the mean of defect.

OF THE BRITISH RACE IN ENGLAND AND AMERICA.

Anglo-American (Roberts, Bowditch, and Baxter) All Classes			American-born (Bowditch 'On the Growth of Children,' p. 51)			Belgian (Quetelet, 'Anthropométrie,' p. 177)						Age last Birth- day
Males			Females			Males.			Females			
No.	Inches	Mètres	No.	Inches	Mètres	No.	Inches	Mètres	No.	Inches	Mètres	
100	19.34	0.491	100	18.98	0.482	The number of observations is not given, but they were probably ten for each age. See 'Anthropométrie,' p. 24.	19.68	0.500	—	19.45	0.494	Birth
8	29.13	0.740	7	27.86	0.708		27.48	0.698	—	27.16	0.690	1
8	32.85	0.834	8	31.60	0.796		31.14	0.791	—	30.75	0.781	2
8	36.37	0.921	8	35.65	0.906		34.01	0.864	—	33.63	0.852	3
30	38.97	0.989	10	38.36	0.974		36.49	0.927	—	36.02	0.915	4
1023	41.36	1.051	605	41.29	1.049		38.85	0.987	—	38.35	0.974	5
1585	43.46	1.104	987	43.35	1.101		41.18	1.046	—	40.58	1.031	6
2203	45.66	1.161	1199	45.52	1.156		43.46	1.104	—	42.81	1.087	7
2533	47.45	1.206	1299	47.58	1.209		45.74	1.162	—	44.97	1.142	8
2678	49.46	1.263	1149	49.37	1.254		47.95	1.218	—	47.10	1.196	9
2556	51.73	1.317	1089	51.34	1.304		50.11	1.273	—	49.17	1.249	10
2523	53.27	1.354	936	53.42	1.357		52.16	1.325	—	51.21	1.301	11
2121	55.04	1.398	935	55.88	1.419		54.13	1.375	—	53.23	1.352	12
2624	57.28	1.455	830	58.16	1.477		56.02	1.423	—	55.11	1.400	13
3632	59.65	1.516	675	59.94	1.523		57.83	1.469	—	56.94	1.446	14
1931	62.16	1.579	459	61.10	1.552		59.56	1.513	—	58.60	1.488	15
2063	64.61	1.647	353	61.59	1.564		61.18	1.554	—	59.90	1.521	16
3184	66.02	1.677	233	61.92	1.572		62.75	1.594	—	60.87	1.546	17
32,215	66.70	1.695	155	61.95	1.573		64.17	1.630	—	61.53	1.563	18
15,885	67.22	1.708	—	—	—		65.15	1.655	—	61.82	1.570	19
11,986	67.61	1.718	—	—	—		65.75	1.670	—	61.98	1.574	20
14,541	67.89	1.728	—	—	—		—	—	—	—	—	21
10,720	67.75	1.722	—	—	—		—	—	—	—	—	22
9027	67.69	1.720	—	—	—		—	—	—	—	—	23
7414	67.90	1.725	—	—	—		—	—	—	—	—	24
}	38,155	68.12	1.728	—	—		66.22	1.682	—	62.13	1.578	25
							—	—	—	—	—	26
							—	—	—	—	—	27
							66.38	1.686	—	62.21	1.580	28
							—	—	—	—	—	29
}	37,610	68.28	1.735	—	—		—	—	—	—	—	30
							—	—	—	—	—	31
							—	—	—	—	—	32
							—	—	—	—	—	33
							—	—	—	—	—	34
}	—	—	—	—	—		—	—	—	—	—	35
							—	—	—	—	—	36
							—	—	—	—	—	37
							—	—	—	—	—	38
							—	—	—	—	—	39
—	—	—	—	—	—		66.38	1.686	—	62.21	1.580	40
—	—	—	—	—	—		66.38	1.686	—	62.21	1.580	50
—	—	—	—	—	—		65.98	1.676	—	61.78	1.571	60
—	—	—	—	—	—		65.35	1.660	—	61.27	1.556	70
—	—	—	—	—	—		64.41	1.636	—	60.40	1.534	80
—	—	—	—	—	—		63.38	1.610	—	59.54	1.510	90

TABLE II.—SHOWING THE WEIGHT (INCLUDING CLOTHES)

Age last Birth-day	British-born (Roberts's 'Manual of Anthropometry,' pp. 74 and 82)									American-born (Bowditch, 'On the Growth of Children,' p. 43. Baxter, 'Statistics, Medical and Anthropological,' vol. i. p. 53)		
	Professional Class Town and Country			Labouring and Artisan Classes in Towns only			Average English					
	Males			Males			Males					
	No.	Lbs.	Kilos.	No.	Lbs.	Kilos.	No.	Lbs.	Kilos.	No.	Lbs.	Kilos.
Birth	—	—	—	100	7·55	3·4	100	7·55	3·4	—	—	—
1	—	—	—	—	—	—	—	—	—	—	—	—
2	—	—	—	—	—	—	—	—	—	—	—	—
3	—	—	—	—	—	—	—	—	—	—	—	—
4	—	—	—	21	41·16	18·6	21	41·16	18·6	—	—	—
5	—	—	—	176	49·99	22·7	176	49·99	22·7	848	41·09	18·6
6	—	—	—	327	54·19	24·6	327	54·19	24·6	1258	45·17	20·5
7	—	—	—	631	56·89	25·9	631	59·89	25·9	1419	49·07	22·3
8	16	60·00	27·3	1038	59·00	26·8	1038	59·50	27·0	1481	53·92	24·5
9	59	62·02	28·1	1203	62·56	28·4	1262	62·29	28·3	1437	59·23	26·9
10	74	67·44	30·6	1126	66·31	30·1	1200	66·87	30·4	1363	65·30	29·6
11	150	72·94	33·1	979	69·46	31·5	1129	71·20	32·3	1293	70·18	31·8
12	248	80·33	36·5	615	73·68	33·4	863	77·00	35·0	1253	76·92	34·9
13	473	88·60	40·2	1054	78·27	35·6	1527	83·43	37·9	1160	84·84	38·5
14	477	99·21	45·1	2094	84·61	38·4	2571	91·91	41·7	908	94·91	43·1
15	541	110·42	50·2	910	96·79	44·0	1451	103·60	47·1	636	107·10	48·6
16	686	128·34	58·3	1038	108·70	49·4	1724	118·52	53·8	359	121·01	55·0
17	1602	141·03	64·1	504	121·53	55·2	2106	131·28	59·6	192	127·49	57·8
18	1522	146·00	66·3	147	128·14	58·2	1669	137·57	62·5	84	132·55	60·1
19	794	148·20	67·4	105	133·39	60·6	899	141·79	64·4	—	—	—
20	391	152·07	69·1	68	142·61	64·8	459	146·34	66·5	29	146·41	66·5
21	340	152·34	69·2	54	142·83	64·9	394	147·58	67·1	38	151·50	68·9
22	205	154·78	70·3	39	141·13	64·1	244	147·95	67·2	34	153·53	69·8
23	91	151·70	69·0	26	141·00	64·1	117	146·35	66·5	30	154·23	70·1
24	45	149·20	68·0	35	142·37	64·7	80	145·78	66·2	42	148·09	67·3
25	70	155·20	70·54	60	146·05	66·4	130	150·62	68·4	247	149·20	67·8
26												
27												
28												
29												
30												
40	—	—	—	—	—	—	—	—	—	578	151·71	68·9

OF THE BRITISH RACE IN ENGLAND AND AMERICA.

Anglo-American (Roberts, Bowditch, and Baxter) All Classes			American-born (Bowditch 'On the Growth of Children,' p. 47)			Belgian (Quetelet's 'Anthropométrie,' p. 346)						Age last Birth- day
Males			Females			Males			Females			
No.	Lbs.	Kilos.	No.	Lbs.	Kilos.	No.	Lbs.	Kilos.	No.	Lbs.	Kilos.	
100	7·55	3·4	100	7·23	—		6·83	3·1		6·61	3·0	Birth
—	—	—	—	—	—		19·84	9·0		18·96	8·6	1
—	—	—	—	—	—		24·25	11·0		24·25	11·0	2
—	—	—	—	—	—		27·55	12·5		27·33	12·4	3
21	41·16	18·6	—	—	—		30·87	14·0		30·65	13·9	4
1024	45·54	20·7	605	39·66	18·0		35·06	15·9		33·73	15·3	5
1585	49·68	22·6	987	43·28	19·6		39·24	17·8		36·82	16·7	6
2050	52·98	24·1	1199	47·46	27·1		43·43	19·7		39·25	17·8	7
2519	56·46	25·6	1299	52·04	23·4		47·62	21·6		41·89	19·0	8
2699	60·76	27·5	1149	57·07	25·9		51·81	23·5		46·30	21·0	9
2563	66·08	30·0	1089	62·35	28·3		55·56	25·2		50·93	23·1	10
2422	70·69	32·1	936	68·84	31·2		59·53	27·0		56·22	25·5	11
2116	76·96	35·0	935	78·31	35·5		63·94	29·0		63·93	29·0	12
2687	84·13	38·3	830	88·65	40·2		72·98	33·1		71·66	32·5	13
3479	93·41	42·4	675	98·43	44·6		81·80	37·1		80·04	36·3	14
2087	105·35	47·9	459	106·08	48·1		90·84	41·2		88·20	40·0	15
2083	119·76	54·4	353	112·03	50·8		100·10	45·4		95·91	43·5	16
2298	129·38	58·8	233	115·53	52·4		109·58	49·7		103·20	46·8	17
1753	134·81	61·2	155	115·16	52·2		118·84	53·9		109·80	49·8	18
899	141·79	64·4	—	—	—		127·00	57·6		114·88	52·1	19
488	146·87	66·7	—	—	—		131·19	59·5		117·30	53·2	20
432	149·54	68·0	—	—	—		134·94	61·2		119·73	54·3	21
278	150·74	68·5	—	—	—		138·69	62·9		120·82	54·8	22
147	150·29	68·3	—	—	—		142·22	64·5		121·71	55·2	23
122	146·93	66·8	—	—	—		—	—		—	—	24
							145·97	66·2		123·04	55·8	25
												26
												27
377	149·91	68·1										28
												29
							145·75	66·1		121·93	55·3	30
578	151·71	68·9	—	—	—		—	—		—	—	40

By the kindness of the authorities, a circular from the Committee was distributed with the annual official return forms to every industrial and reformatory school in the Kingdom, and returns have been obtained from several such schools; some of the results of which are shown in the foregoing tables.

The Committee have also addressed insurance companies with the view of inducing their medical officers to keep accurate records of the physical measurements of persons whose lives are proposed for insurance, and in some instances have been informed that attention will be given to the matter.

They have also addressed the following circular to the head-masters of Public Schools:—

‘The Anthropometric Committee of the British Association have directed me to forward you the enclosed papers, with the view of calling your attention to the great service which the Public Schools might render to Anthropometric Science by establishing a system of statistical record of height, weight, strength, &c., for the purpose of ascertaining the laws of growth and development in youth and adolescence.

‘Some schools have already furnished the Committee with valuable information of the kind desired. Marlborough School, for example, has, for the last seven years, published in the Reports of the School Natural History Society details of height, weight, chest and other measurements of the boys; and these statistics have been abstracted under the direction of the Committee. The Warden of Christ’s Hospital, Major Brackenbury, has for several years recorded the same details.

‘The Committee hope that you may be induced to attempt a similar record in your own school, and I am directed to say that they will gladly render any assistance they can in setting it on foot. They are confident that, when once established, you will find the materials collected so full of interest and usefulness in many ways, that you will not regret any little trouble it may give you at the outset, and they therefore do not refrain from asking at your hands this service to Science, however unwilling they may be to trespass upon time already fully occupied.

‘The Medical Officer and the Drill Master of the School would, no doubt, do whatever may be necessary towards preparing a complete and accurate record.’

Several replies to this circular have already been received from public schools; among them, the Head-master of Eton (the Rev. J. J. Hornby, D.D.), who writes that he will be happy to do what he can to establish a system of statistical record of height, weight, strength, &c., at Eton, for the purpose of the Committee, at the termination of the present vacation.

Mr. Roberts, a member of the Committee, whose ‘Manual of Anthropometry’ is of the utmost value to inquirers, has furnished the Committee with a series of observations, illustrated by diagrams, and accompanied by the following remarks on the establishment of a standard of stature and weight. These are given as a specimen of the manner in which the information the Committee is collecting may be made available.

‘The accompanying tables and charts show that the average height and weight varies with the social position and occupation of the people, and to obtain the typical proportions of the British race it would be necessary to measure a proportionate number of individuals of each class, or a community which comprised all the classes in the proportions in which

they exist in the whole nation. If we take the census of 1871 we shall find that such a model community would consist of 14·82 per cent. of the non-labouring class, 47·46 per cent. of the labouring class, and 37·72 per cent. of the artisan and operative classes. But as many trades are confined to certain districts it would be very difficult to find such a representative population in a limited space in this country. The nearest approach to one would be found in some of our larger county towns, such as York, Derby, or Exeter, with a large portion of the surrounding agricultural districts.

‘As the statistics which I have collected in England represent various classes rather than the general population, I have arranged them in a double series—a most favoured class and a least favoured class—and I have adopted the average of the two extremes as typical of the English nation. The American statistics, with which I have compared my own, are very valuable, as they represent the general population of the United States. Dr. Bowditch’s data were collected “in nearly all the public (common) schools of the city of Boston, in several schools in South Boston, Roxbury, Charlestown, and Jamaica Plain; in the Institute of Technology, in two Latin schools, a school for young ladies, and in several public (common) schools in Brookline,” (“On the Growth of Children,” 8th An. Rep. State Board of Health of Mass., 1877), and Dr. J. H. Baxter thus vouches for the representative character of the statistics published by the United States Government:—“It should be borne in mind that this statistical matter does not relate to soldiers already in the service—picked men in no wise representing the masses—but to the people, the men engaged in every occupation; the professional man and the man of letters, the trader, the merchant, the clerk, the artisan and the unskilled labourer.” (“Statist. Med. and Anthropol.,” vol. i. p. 19.)

‘The accompanying tables and charts show the relation which exists between the height and weight (1) of the most favoured and the least favoured classes of the English population; (2) between the English and Americans of British origin; (3) between the two sexes of the British race; and (4) between the British and Belgian populations of both sexes.

‘1. *The height and weight of the English male population.* (Chart tracings No. 1; tables I. and II., columns 1, 2, and 3.) From birth to the age of 6 or 7 years the statistical data are imperfect, but it is probable from the directions of the curves of growth that all classes of the English population are about the same in height and weight at this period. After the age of 8 years the curves diverge very rapidly, the divergence being due to a slower development of the labouring and artisan class.

‘After 8 years the professional class exceeds the labouring and artisan class, thus:—

						Height. Inches.	Weight. lbs.
At 8 years the Professional Class exceeds the Labouring and Artisan Class by	.	.	.	.	.	0·32	1·0
„ 10 years	„	„	„	„	„	2·88	1·13
„ 12 „	„	„	„	„	„	3·98	6·65
„ 14 „	„	„	„	„	„	3·35	14·60
„ 16 and 17 years	„	„	„	„	„	3·44	19·55
„ 18 „ 19 „	„	„	„	„	„	2·76	16·33
„ 20 „ 21 „	„	„	„	„	„	2·50	9·50
„ 25 to 30 „	„	„	„	„	„	2·11	9·15

‘The greatest difference in height is at 12 years, when it amounts to about 4 inches ; the greatest difference in weight is at 17–18 years, when it amounts to nearly 20 lbs. The full stature is attained earlier in the professional than the artisan class ; in the former about the age of 21 years, and in the latter between 25 and 30 years. The American statistics show that a slight increase in height takes place up to the 35th year. The growth in weight does not cease with that of the stature, but continues slowly to increase in both classes up to about the 30th year.

‘2. *The relation between the height and weight of English-born and American-born subjects.* (Chart tracings No. 2 ; tables I. and II., columns 3, 4, and 5.)

‘A comparison of the average stature of the English and American branches of the British race shows that they are nearly identical from the age of 4 years to the period of full growth, but the weights differ at the two ends of the curves.

‘In stature, between the ages of 4 and 8 years, the American exceed the English by rather less than half an inch ; but this is, no doubt, to be attributed to the fact that the English statistics during this period are derived entirely from our town population. From 9 to 15 years the stature of the two branches of our race is the same, and from 16 to 22 it is slightly in favour of the English. At adult life the Americans are a little taller than the English, but the number of the English observations after the age of 22 is not sufficient to determine this point accurately.

‘In weight, from the age of 5 to 10 years, the English exceed the Americans, but this is probably to be attributed to the greater weight of the clothes worn by the poorer classes in this country. At 12 the weight is equal ; from 13 to 16 it is in favour of the Americans, from 17 to 19 of the English, and after 20 years of the Americans. The number of observations for each age after 16 years of the Americans are too few to be relied on.

‘Mr. Gould and Dr. Baxter have shown that, of the recruits for the American Army those born of American parents are taller than those born of English parents, and it has been inferred that a change has taken place in the physical proportions of our race in that country. Dr. Baxter found the average stature of the American-born recruits, between the ages of 30 and 35 years, to be 68·22, the English-born 66·92, and the Irish-born 66·91 inches. But the difference in height is to be explained by the difference in the class from which the recruits were drawn. The English and Irish being emigrants from this country consisted almost entirely of the labouring and artisan class, which we find in this country has an average stature of 66·95 inches ; while the American recruits were drawn from all classes of the community by conscription. The average height of all classes in England between the ages of 25 and 30 years is 68·00 inches, and of the corresponding ages in America 68·12 inches, and the slight advantage which the Americans possess is probably due to the very large number of observations (38,055) from which the average is drawn, compared with the very small number of the English (142).

‘The averages of the stature and weight of the two great branches of the British race being so nearly alike, I have deduced from them a typical standard of height and weight for the whole British (Anglo-Saxon or Anglo-American) race, which will be found in the 5th column of Tables I. and II. This standard does not consist of any one of the nationalities—English (and Welsh), Scotch, and Irish—of which our race is com-

posed, but of all three in various proportions. In my statistics the English predominate; in the American, Irish blood must be very largely represented, and there is a large admixture of the Scotch element in both. In order to distinguish the relative stature and weight of the three nationalities I have had recourse to the army returns of both countries, and the results are given in detail in Tables III. and IV. (as shown on preceding page).

‘These tables show that the English (and Welsh) recruits are shorter in stature than the Irish by 0·30 of an inch, and the Scotch by 0·44 of an inch; and the American recruits *born in Great Britain* are about half an inch shorter in stature than those of corresponding nationality in the English army.

‘The Scotch recruits in Great Britain though possessing the greatest stature, are lighter in weight than the English (and Welsh) by 3·3 lbs., and the Irish by 4·1 lbs., and the Irish are nearly 1 lb. heavier than the English.

‘Lowering the standard of height from 66 inches in 1862–3 to 65 inches in 1864–5 lowered the average stature of the English by 0·17 inch, of the Scotch by 0·21 inch, and of the Irish by 0·25 inch; but there was an increase of weight in all three nationalities. In the Scotch it amounted to 6·7 lbs.

‘It is probable that the stature of the English recruits is lowered by a large admixture of Welsh, and by the young musicians, who are almost entirely of English birth and often under the standard height.

‘3. *The relation between the height and weight of the two sexes of the British or Anglo-Saxon race.* (Chart tracings No. 3; tables I. and II., columns 5 and 6.)

‘My statistics of the height and weight of females in England are very limited in extent (from 8 to 14 years of age), and refer only to the labouring and artisan class. As the average male population of England and America are so nearly identical, we may accept the measurements of American girls published by Dr. Bowditch as applicable to this country also. These were collected in the common schools in Boston and surrounding neighbourhood, under the same circumstances and at the same time as the males, and fairly represent the general population. They are given in column 6 of tables I. and II., and the tracings are shown in diagrams 3 and 4. The observations at the time of birth are English, collected by myself, but all the remainder are American.

‘At birth girls are about $\frac{1}{3}$ of an inch shorter than boys, and from 1 to 4 there is a much wider difference, but the statistics are too few to determine the amount. From $5\frac{1}{2}$ to $10\frac{1}{2}$ the stature of the two sexes is nearly the same, the advantage being slightly in favour of the boys; but after the age of $11\frac{1}{2}$ and up to $14\frac{1}{2}$ years the girls are the taller; at $12\frac{1}{2}$ the difference is 0·84, and at $13\frac{1}{2}$ 0·88 of an inch. From $15\frac{1}{2}$ to $18\frac{1}{2}$ the growth of the boys is much greater than that of the girls. At 15 the difference in favour of the boys is 1·06 inches; at 16, 3·02 inches; at 17, 4·10; and at 18, 4·85 inches, at which age the females probably attain their full stature. (Chart tracings No. 4; tables I. and II., columns 5, 6, 7, and 8.)

‘In considering the weight of the two sexes, we find that at birth girls are $\frac{1}{3}$ lb. lighter in weight than boys; at 5 and 6 the difference amounts to about 6 lbs., but after the latter age the weights gradually approximate, and at 12 they are identical. From $12\frac{1}{2}$ to $15\frac{1}{2}$ the girls are heavier than the boys, the difference at $13\frac{1}{2}$ being 4·52 lbs., and at $14\frac{1}{2}$, 5·02 lbs. At

15½ the weight of the two sexes is again identical, and after this period the excess is largely on the side of the boys; at 16½ it is 7·73 lbs., at 17½, 13·85 lbs., and at 18½, 19·27 lbs.

‘As M. Quetelet’s tables are the only complete series of observations on the height and weight of both sexes, and at all ages, we possess, and as they have been generally accepted by anthropologists and physiologists as reliable standards, especially at ages below the adult period of life, I have added his figures to my tables, and traced their relation to the British statistics on the diagrams 3 and 4, for the purpose of comparison. M. Quetelet does not state the number of observations on which his tables were based, but they were few (“*peu considérable.*” “*Anthrop.*” p. 182); and probably did not exceed ten individuals for each age (“*Anthrop.*” p. 24); moreover, the measurements were made on persons “regularly formed,” and therefore to a certain extent selected. It is necessary to bear these facts in mind in estimating the value of M. Quetelet’s tables as standards of reference, and when comparing them with the English and American tables based on many hundreds of observations for each age. M. Quetelet does not state whether the values for each age are for the birthday or for the interval between two birthdays, and I have therefore arranged them like the British, as representing the age between two birthdays. This is important, as bearing on the absolute height and weight, but not on the curves of growth. In the tracings on diagrams 3 and 4 the lines representing the Belgians would be one division of the scale nearer to the lines representing the English if the figures represent the birthdays, but the relative position of the various curves would remain the same. If M. Quetelet’s figures represent the heights and weights of the birthdays exactly, there is a difference of half a year in favour of the British at all ages after that of birth.

‘The curves show that growth in height is greater in the British from birth to 5 years than in the Belgians. From 6 to 12 years the curves approximate, and the difference is two-thirds less than it was at 5 years of age. From 13 to 17 years the growth of the British is much more rapid than that of the Belgians, the difference in stature at the latter age being about four times greater than it is at 12 years. At adult life the difference in height of the males of the two countries is nearly 2 inches, while the height of the females is the same in both. The most marked differences of the height of the two peoples, is in the relation of the two sexes, the British girls being taller than boys from 11 to 14 years, while the Belgian females are shorter than the males throughout their lives.

‘The curves of the weight of the body in the two countries are very similar, except that the weight of the British girls from 12 to 15 is greater than that of the boys of the same ages, whereas the weights of the Belgians of both sexes are the same at 12, but at all other ages the females are lighter than the males.

‘The differences between British and Belgian statistics cannot be attributed to differences in race, as they are not uniform throughout, and we must consider M. Quetelet’s tables, based as they are on so small a number of observations, rather as approximations or estimates of the stature and weight of his countrymen. The difference in the height and weight of the sexes, which was first pointed out by Dr. Bowditch (“*Boston Med. and Surg. Journal,*” 1872), has quite escaped the notice of M. Quetelet, although he has published some British statistics, which demonstrate its existence, and it has been confirmed by all the statistics which have been

collected since. The difference is due to the more rapid growth, and the attainment of maturity at an earlier age, of females than males, for we find that the curve representing females between the ages of $11\frac{1}{2}$ to $18\frac{1}{2}$ is almost identical with the curve representing males between the ages of $14\frac{1}{2}$ and $21\frac{1}{2}$ years, these two periods corresponding with each other in the physical development of the two sexes. It is probable that the curve representing males from 11 to 14 years is depressed a little by school life and the earlier occupation of boys than girls, but the chief difference is obviously attributable to the quicker development of girls, as it is found to exist in all classes of the community. The large number of observations included in my tables show that the difference is constant, and it must therefore be accepted as a fact essential to the proper study of the growth of civilised races, no matter from what cause it may arise.'

The attention of the Committee has been directed to the progress of anthropometric research in other countries. The 'Annals of Statistics' for 1878, published by the Minister of Agriculture, Industry, and Commerce of Italy, has two anthropometric papers of considerable interest directly bearing on the subject of this Committee's inquiry. The first is by Dr. L. Pagliani on the development of the human body. Referring to his own work '*Sopra alcuni fattori dello sviluppo umano*,' to Dr. Bowditch's investigations as to the growth of children, and to '*Die Entwicklung des Menschen in den der Geschlechtsreife vorangehenden späteren Kindesjahren und im Jünglingsalter (von 7 bis 20 Jahren) in Verhältniss zum Geschlecht, zur Ethnographie und zu den Nahrungs- und Lebens-Bedingungen in Moleschott's Untersuchungen zur Naturlehre des Menschen und der Thiere*,' Dr. Pagliani confirms the observation of Dr. Bowditch that up to 10 years of age the stature and weight of children of both sexes present but little difference, though they are always in favour of boys; that from 10 to 15 years of age the difference becomes greater, and is always in favour of girls; and that after 15 the boys reassert their superiority, and are found to be taller and heavier. Dr. Pagliani also confirms Mr. Roberts's observation that the economic condition of the child has much influence on his, or her, weight and stature. In weight and stature alike the children of the labouring classes stand lower than the children of the well-to-do classes. This is the result of a considerable number of observations in Turin, and is fully borne out by the diagram which accompanies the memoir. Signor Cesare Lombroso in his paper '*On the Anthropometry of the Lucchesia and Garfagnana*' endeavours to prove from the high stature, black hair, formation of the head, tending to the dolichocephalic, or head of the African type, *i.e.* one with its diameter from side to side notably shorter than the diameter from front to back, the opposite to brachycephalic, and from other distinctive characteristics, that the people of those States come from the old Etruscan race. Both memoirs illustrate in a conspicuous manner the utility and importance of the inquiry which our Committee has undertaken to institute. M. Quetelet's work upon '*Man (Sur l'homme et le développement de ses facultés)*,' is well known. But at this moment extensive inquiries in the same direction are being made in Germany, the United States, and other countries. Recent political events, moreover, have imparted a fresh interest on questions of races, and if we are able to extend our researches over all the portions of the British Empire, the home of so many races, we may contribute largely

to the amount of general knowledge on the physical and intellectual powers of man.¹

Professor Bowditch, of Harvard, Mass., has published a supplementary investigation of the growth of children, with suggestions in regard to methods of research, in the 10th Annual Report of the State Board of Health (Boston, 1879). His object was to ascertain whether differences of race or differences in the mode of life affect the rate of growth the more profoundly. The general conclusion he arrives at is that mode of life, as indicated by the occupation of the parents, is equally important with race in determining the rate of growth of children. In his remarks on Anthropometrical methods, Dr. Bowditch reprints, with approval, the forms and instructions which have been issued by this Committee, and recommends the manual and chart prepared by Mr. Roberts. He also advises the use of the card system, extensively adopted in Germany, in which the facts relating to every single person are collected upon a card, which can be combined with other cards in any number of ways, according to the nature of the facts desired to be grouped together. This plan the Committee have resolved to adopt wherever it can conveniently be applied, and a form of card has been drawn up for use by the head-masters of public schools.

A special inquiry has recently been instituted in almost every primary school throughout Switzerland, at the instance of a Committee of the Société des Sciences Naturelles, for the purpose of ascertaining the distribution of the different colours of the iris, hair, and skin, as connected with the settlement of the aboriginal races in that country.

The coincidence of these several inquiries with that undertaken by this Committee is exceedingly interesting, and leads to the hope that, from all these various sources, information of great value may in due course be elicited.

The Committee have made progress during the year in the collection of typical photographs of the inhabitants of the British Islands, and have compiled an album which is exhibited to this Section. A sub-Committee has been appointed for Bradford, but has not yet furnished a report. Mr. Sorby, LL.D., F.R.S., has kindly undertaken to assist the Committee in Sheffield with the results of his experience and observation. The Committee hope to continue this branch of their operations during the coming year.

In addition to the collections referred to in the last Report, the Committee have been favoured with several other gifts and loans, and in particular with the loan of a fine collection, comprising 102 Maori and 4 Fijian photographs belonging to Mr. Alfred Eccles, of Torquay, with permission to select from them such as may be suitable for reproduction in a collection of photographic types of the races of the Empire.

The Committee owe thanks to the numerous employers of labour, head-masters of public schools, medical officers of volunteer regiments, public officers, and other persons who have furnished them with statistics, as well as to those who are now engaged in the collection of observations for their use next year.

¹ Communicated by Professor Leone Levi.

